IN THE CLAIMS

1. [currently amended] Method for monitoring of a communication link between a source network node and a destination network node, comprising

- employing, on said communication link, the IPSec protocol for tunneling IP packets between the source network node and the destination network node,
- transmitting an acknowledgement packet by the destination network node ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled, said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and said second condition being the reception of an IPSec packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet.

2. [currently amended] Method for monitoring of a communication link between a source network node and a destination network node, comprising

- employing, on said communication link, the IPSec protocol for tunneling IP packets between the source network node and the destination network node,
- transmitting an acknowledgement packet by the destination network node ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled, wherein said acknowledgement packet comprises at least the sequence number of the last received IPSec packet and at least one value corresponding to the amount of data received via the IPSec communication link, said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet.

3. [original] A method according to claim 2, wherein said acknowledgement packet comprises at least a packet counter value indicating the number of packets received via the communication link.

4. [original] A method according to claim 2, wherein said acknowledgement packet comprises at least a byte counter value indicating the number of bytes received via the communication link.

5. [original] A method according to claim 2, wherein said acknowledgement packet comprises at least a packet counter value indicating the number of packets received via the communication link and a byte counter value indicating the number of bytes received via the communication link.

6. [original] A method according to claim 2, further comprising at least the step of determining the packet success rate of the communication link at least partly on the basis of information contained in an acknowledgement packet.

7. [original] A method according to claim 2, further comprising at least the step of determining the throughput of the communication link at least partly on the basis of information contained in an acknowledgement packet.

8. [currently amended] A method for measuring the performance of an IPSEC ~~monitoring~~ of a communication link between a source network node and a destination network node, comprising

- employing, on said communication link, the IPSec protocol for tunneling IP packets between the source network node and the destination network node,
- transmitting an acknowledgement packet by the destination network node ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,
  - said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and
  - said second condition being the reception of an IPSec packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet
- storing of the sequence number and the transmission time of each IPSec packet transmitted from the source network node to the destination network

node in a memory means, and

- determining the round trip time of the communication link on the basis of the reception time of an acknowledgement packet and the stored transmission time of the corresponding transmitted packet.

9. [currently amended] Method for monitoring of a plurality of communication links between a source network site and a destination network site, each of the sites having at least one network node,
in which method an active communication link is monitored and an inactive communication link is monitored,
said method comprising at least the following steps for monitoring an active communication link between the source network site and the destination network site, the active communication link employing the IPSec protocol:

the step of transmission of an acknowledgement packet by the destination network node ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet,

and said method comprising at least the following steps for monitoring an inactive communication link between the source network site and the destination network site:

- transmitting a probe packet from a source node at the source network site via said inactive communication link to a destination node at the destination network site,

- storing the transmission time of said probe packet in a memory means,

- transmitting a response packet from said destination node to said source node as a response to receiving a probe packet,

- determining the round trip time of said inactive communication link from the difference of the reception time of the response packet and the stored transmission time of the corresponding probe packet

- maintaining present status of said active and inactive communications links or replacing said active communication link with said inactive communication link based on results of said monitoring.

10. [original] A method according to claim 9, said method further comprising the steps of

- transmitting a plurality of probe packets from said source node at the source network site via said inactive communication link to said destination node at the destination network site,

- receiving response packets to said probe packets, and

- determining the packet success rate of said inactive communication link from the number of said received response packets and the number of transmitted probe packets.

11. [currently amended] A network node comprising at least

- means for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted to said second network node,

- means for sending IPSec packets containing IP packets,

- means for receiving acknowledgement packets for said IPSec packets,

- means for obtaining a sequence number of an IPSec packet from a received acknowledgement packet,

- means for obtaining a value from the acknowledgement packet, said value corresponding to the amount of data received via the communication link by the second network node, and

- means for determining the packet success rate of the communication link at least partly on the basis of said value.

12. [original] A network node according to claim 11, further comprising at least means determining the throughput of the communication link at least partly on the basis of said value.

13. [currently amended] A network node comprising at least

- means for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted to said second network node,
- means for sending IPSec packets containing IP packets,
- means for receiving acknowledgement packets for said IPSec packets,
- means for obtaining a sequence number of an IPSec packet from a received acknowledgement packet,
- means for storing in a memory means the sequence number and the transmission time of each IPSec packet transmitted by the network node via the communication link, and
- means for determining the round trip time of the communication link on the basis of the reception time of an acknowledgement packet and the stored transmission time of the corresponding transmitted packet.

14. [currently amended] A network node comprising at least

- means for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted from said second network node,
- means for sending IPSec packets containing IP packets,
- means for transmitting an acknowledgement packet ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet.

15. [currently amended] A network node comprising at least

- means for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted from

said second network node,

- means for receiving IPSec packets containing IP packets,

- means for transmitting an acknowledgement packet ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,-

- means for inserting a sequence number of a received IPSec packet and at least one value corresponding to the amount of data received via the communication link in said acknowledgement packet,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet.

16. [previously amended] A network node according to claim 15, said network node further comprising at least means inserting a packet counter value in said acknowledgement packet, said packet counter value indicating the number of packets received via the communication link.

17. [previously amended] A network node according to claim 15, said network node further comprising at least means inserting a byte counter value in said acknowledgement packet, said byte counter value indicating the number of bytes received via the communication link.

18. [currently amended] A network node comprising at least

- means for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted from said second network node,

- means for transmitting an acknowledgement packet ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet,

- means for sending IPSec packets,
- means for receiving acknowledgement packets for said IPSec packets,
- means for obtaining a sequence number of an IPSec packet from a received acknowledgement packet,
- means for obtaining a value from the acknowledgement packet, said value corresponding to the amount of data received via the communication link by the second network node, and
- means for determining the packet success rate of the communication link at least partly on the basis of said value.

19. [currently amended] Software program product comprising a computer readable medium containing computer-readable software program code for a network node for controlling said network node to communicate using ~~communicating with~~ the IPSec protocol with a second network node via a communication link, said software program ~~product~~ code comprising at least

- software program code for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted from said second network node,
- software program code for receiving IPSec packets containing IP packets,
- software program code for transmitting an acknowledgement packet ~~if~~ at least when a second condition ~~one~~ of a first condition and a second condition is fulfilled,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of a packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet,

- software program code for receiving acknowledgement packets for

IPSec packets transmitted by the network node,

- software program code for obtaining a sequence number of an IPSec packet from a received acknowledgement packet,

- software program code for obtaining a value from the acknowledgement packet, said value corresponding to the amount of data received via the communication link by the second network node, and

- software program code for determining the packet success rate of the communication link at least partly on the basis of said value.

20. [currently amended] Software program product comprising a computer readable medium containing computer-readable software program code for a network node for controlling said network node to communicate using ~~communicating with~~ the IPSec protocol with a second network node via a communication link, said software program code ~~product~~ comprising at least

- software program code for communicating over a IPSec protocol communication link with a second network node in order to tunnel IP packets transmitted to said second network node,

- software program code for sending IPSec packets containing IP packets,

- software program code for receiving acknowledgement packets for said IPSec packets,

- software program code for obtaining a sequence number of an IPSec packet from a received acknowledgement packet,

- software program code for storing in a memory means the sequence number and the transmission time of each IPSec packet transmitted by the network node via the communication link, and

- software program code for determining the round trip time of the communication link on the basis of the reception time of an acknowledgement packet and the stored transmission time of the corresponding transmitted packet.

21. [allowed] Method for monitoring of a communication link between a source network node and a destination network node, comprising

- employing, on said communication link, the IPSec protocol for tunneling IP

packets of one or more TCP/IP connections between the source network node and the destination network node,

- transmitting, separately from TCP retransmission scheme carried out on said one or more TCP/IP connections, an acknowledgement packet by the destination network node if at least one of a first condition and a second condition is fulfilled,

said first condition being the reception of at least a predetermined number of IPSec packets after transmission of the previous acknowledgement packet, and

said second condition being the reception of an IPSec packet via the communication link after a predetermined time has passed after transmission of the previous acknowledgement packet.

22. [allowed] A method according to claim 21, comprising tunneling IP packets of two or more TCP/IP connections by means of said communication link using the IPSec protocol.